

Special Master's Proposed Construction of Disputed Terms				
Actual Claims Language	Crossroads' Proposed Construction	Crossroads' Evidence	Defendants' Proposed Construction	Defendants' Evidence
	<p>standards for exchanging information with a block-oriented storage device."</p> <p><b>Low Level . . . Protocol:</b></p> <p>"A set of rules or standards that enable computers to exchange information without involving high level file system protocols."</p> <p>Or, in the alternative:</p> <p><b>Native Low Level Block Protocol:</b></p> <p>"A set of rules or standards designed for exchanging information with a block-oriented storage device without involving high level file system protocols."</p>	<p>Col. 9, ll. 29-30; Col. 10, l. 10; Col. 10, ll. 48-49 (specification consistently uses "NLLBP" as a single term).</p> <p>Fig. 1; Col. 3, ll. 20-23 (network server shown in Fig. 1 communicates with storage devices via NLLBPs even though the SCSI commands are sent by a network server).</p> <p>Fig. 1, Col. 1, ll. 49-54; Col. 3, ll. 17-23 (the "storage router" of the invention is contrasted with a "network server" that allowed access to storage devices by translating high level file system commands of the "network protocol" into low level requests (i.e., NLLBP) and sending the NLLBP to the physical storage devices).</p> <p>Claim 1, Col. 9, ll. 13-30 (storage router "allow[s] access from devices connected to the first transport medium</p>	<p><b>Native:</b></p> <p>Designed for use with a specific type of storage device.</p> <p><b>Low-level protocol:</b></p> <p>A set of rules or standards that enable computers to exchange information without involving network servers, Ethernet networks, or higher-level protocols such as TCP/IP, Ethernet protocols, network protocols or file system protocols.</p> <p><b>Block protocol:</b></p> <p>A set of rules or standards for exchanging information with a block-oriented storage device</p>	

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		<p>to the storage devices using native low level, block protocols" (emphasis added); the storage router, specifically, the supervisor unit within the storage router, "uses" the NLLBP to permit or enable access).</p> <p>Abstract; Col. 2, ll. 12-15, 17-20, 24-27; Col. 3, ll. 59-63; Col. 3, ll. 51-53; Col. 4, ll. 2-6; Col. 5, ll. 1-5; Col. 9, ll. 28-31; Col. 10, ll. 9-11 (specification discloses that NLLBPs are used by, and at, the storage router to allow access).</p> <p>Col. 6, ll. 33-41, 46-56 (specification describes two embodiments wherein "devices" making the storage access request are servers).</p> <p>April 6, 2005 Reply to Office Action at 10-11, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. E; July 22, 2005 Reply to Office Action at 24-27,</p>		

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		Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. F (Crossroads distinguished Petal, Spring and Oeda as having a server that provided controlled access to storage was required to translate high level file system commands into low level commands in order to send the NLLBP to the storage devices).  April 6, 2005 Reply to Office Action at 8-11, 19, 22-23, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. E; July 22, 2005 Reply to Office Action at 11-17, 21-28, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. F (showing that Crossroads did not make a sweeping disclaimer of <i>any</i> use of a "network server"; Crossroads distinguished its invention from Oeda, Petal and Spring based on the requirement that the "network server" that provided controlled			

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		<p>access to storage was required to translate the high level file system commands into low level commands in order to send the NLLBP to the storage device, not the use of Ethernet networks, Ethernet or TCP/IP).</p> <p>Col. 2, ll. 17-20; Col. 5, ll. 19-22, 50-57, 60-63; Col. 6, ll. 32-37; '147 Patent, Claim 1, Col. 9, ll. 28-32 (disclosing and claiming embodiments using Fibre Channel; the inclusion of "without involving . . . network protocols" according to Defendants' expert would prohibit the use of Fibre Channel despite the fact that these are express embodiments).</p> <p>Col. 5, ll. 53-56 (Fibre Channel is a protocol used for communications over "Fibre Channel based networks").</p> <p>Col. 1, ll. 42-53; Col. 3, ll. 16-24; Col. 5, ll. 1-5 (specification notes that</p>			

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		<p>NLLBPs do not involve overhead of high level network protocols or file systems).</p> <p>Col. 6, ll. 31-41, 46-56 (specification has two distinct embodiments in which the "devices" making storage requests are servers).</p> <p><b>Extrinsic:</b></p> <p>March 7, 2011 Supp. Decl. of John Levy, Ph.D., ¶2; March 7, 2011 Decl. of Brian Berg ¶42 (experts agree that "NLLBP" is not a term of art).</p> <p>Hr'g Tr. at 121:8-16; March 8, 2011 (parties agree that "NLLBP" should be construed as a single term, consistent with use in specification)</p> <p>March 7, 2011 Supp. Decl. of John Levy, Ph.D., ¶13 (Ethernet and TCP/IP protocols are concerned only with delivery of messages).</p>		

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		<p>March 7, 2011 Decl. of Brian Berg ¶48 (a SCSI command would be a low level command).</p> <p>March 7, 2011 Decl. of Brian Berg, ¶37 (states that "low level" means "without involving . . . file system protocols.").</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶4 (person of ordinary skill would understand that the specification discloses a server that sends requests for storage access to a storage router using NLLBP).</p> <p>Hr'g Tr. 76:4-10, 82:20-23, March 8, 2011 (in hypothetical network of Graphic 2 of Defendants' Markman Demonstratives (Fore Decl. ISO PI's Post-Hr'g Cl. Const. Br., Ex. J) the workstation sends high level file systems commands to network server); <i>Id.</i> at 200:2-5, 201:22-24, 202:24-203:3 (Defendants expressly stated that a</p>		

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		<p>"device" is a "computer" that is both "reading or writing data from a storage device" and sending NLLBPs and the only "device" that does so in Graphic 2, shown in Crossroads' Post-Hearing Brief is the "network server").</p> <p>Crossroads' Concise Statement of Infringement, <i>Dot Hill</i> Litigation (Case No. A-03-CV-754 SS), Fore Decl. ISO Pl.'s Post-Hr'g Cl. Const. Br., Ex. H; April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶5 (accused devices in <i>Dot Hill</i> litigation were designed to be used in hypothetical system shown in Graphic 2 of Defendants' Markman Demonstratives (Fore Decl. ISO Pl.'s Post-Hr'g Cl. Const. Br., Ex. J)).</p> <p>Hr'g Tr. at 81:12-15, March 8, 2011 (all parties agree that the Petal, Spring and Oeda references disclose</p>		

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		systems with a "server" interposed between workstations and storage devices); <i>Id.</i> at 88:2-89:16; 93:4-7; 100:16-24 (Defendants agree that the "translation" distinguished by patentees during reexamination was from high level file system commands into NLLBP requests); <i>Id.</i> at 89:11-16 (parties agree that "allowing access . . . using NLLBP" occurs without a translation from a high level file system command to a NLLBP request); <i>Id.</i> at 91:14-16, 92:1-5, 152:4-7 (Defendants concede that the "network protocols" described in the Oeda, Petal and Spring references included file system commands thus, including "without involving . . . network protocols" is superfluous to "without involving a translation from a high level file system command to a native low level block			



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		<p>protocol request.”)</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶7 (CIFS, NFS and FTP are network protocols).</p> <p>March 7, 2011 Decl. of Brian Berg, ¶37 (Defendants’ expert uses term “network protocol” broadly such that it would include Fibre Channel).</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶6 (under Defendants' construction, a protocol used for communication over "Fibre Channel based networks" would be a network protocol).</p> <p>February 22, 2011 Decl. of John Levy, Ph.D., ¶¶ 31, 33 (NLLBPs do not have the overhead associated with the use of higher level protocols to access storage); <i>Id.</i> ¶ 34 (specification describes network servers communicating with storage using</p>			

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		NLLBPs).			
Claim 12:					
The method of claim 11, wherein mapping between <b>devices</b> connected to the first transport medium and the storage devices includes allocating subsets of storage space to associated devices connected to the first transport medium, wherein each subset is only accessible by the associated device connected to the first transport medium.	<b>Device:</b> "Computing device that issues storage access requests."	<b>Device:</b> <b>Intrinsic:</b> Claim 1, Col. 9, ll. 27-30 ("devices" refers to the devices that make requests and are allowed access to storage devices).  Col. 1, ll. 36-37; Col. 2, ll. 4-5; Col. 4, ll. 55-56; Col. 8, ll. 65-68 (the specification describes the devices that make requests to access the storage devices as "computing devices").  Col. 1, ll. 57-60 ("from the perspective of a workstation, or other computing device, seeking to access such server data, the access is much slower than access to data on a local storage device ").  Claim 3, Col. 9, ll. 37-39 (principles of claim differentiation require "devices," as a group,	<b>Device:</b>  Computer.	See claim 1, <i>supra</i> .	No Construction Necessary.

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		<p>must necessarily be broader than "workstations").</p> <p>Col. 6, ll. 31-41, 46-56 (the specification describes "servers" as a type of computing device that can make storage access requests).</p> <p>Abstract, Col. 1, ll. 21-24, ll. 36-37, ll. 53-56; Col. 2, ll. 4-6; Col. 3, ll. 3-6, 41-43; Col. 4, ll. 38-42, ll. 55-56 Col. 6, ll. 45-55; Col. 8, ll. 65-68 ("devices" is used broadly to refer to various computing devices such as workstations, input/output devices, "initiator" and "target" devices).</p> <p>April 6, 2005 Reply to Office Action at 8, 10, 12, 22, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const., Ex. E; July 22, 2005 Reply to Office Action at 7-15, 21-23, 27-29, 32, 33, 35-37, 39, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex.</p>		

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		<p>F ("Device" is used over ninety times in the reexamination prosecution history to refer to types of devices capable of making requests for storage).</p> <p><b>Extrinsic:</b></p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶ 4 (one of ordinary skill would understand that in the embodiments at Col. 6, ll. 33-41; 46-56, it is the server that sends requests for storage access to the storage router using NLLBP).</p> <p><u>The McGraw-Hill Illustrated Dictionary of Personal Computers</u> 126 (4<sup>th</sup> ed. 1995), Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. W (defining device as "a mechanical, electrical or electromechanical contrivance or appliance. Commonly used in reference to peripherals such as printers, CRTS and disk drives").</p>			

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		<p>Hr'g Tr. at 202:24-203:3, 205:4-7, Mar. 8, 2011 (Defendants' counsel agreeing that the defining characteristic of a device is that it is the thing that issues storage requests).</p> <p>May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., ¶3 (a "network server" is a server that can request access to storage).</p> <p>Microsoft Computer Dictionary 430 (3d Ed. 1997), May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., Ex. A (defining "server" as "(1) on a local area network (LAN), a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network").</p>		

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		Special Master's Report at 22, <i>Dot Hill</i> Litigation, Pl.'s Cl. Const. Hr'g Ex. P-15 (Court previously construed "storage router" as "a data transmitting device that allows users to integrate different servers or workstations into a storage network").			
<b>Claim 13:</b> The method of claim 12, wherein the <b>devices</b> connected to the first transport medium comprise workstations.	<b>Device:</b> "Computing device that issues storage access requests."	<b>Device:</b> <b>Intrinsic:</b> Claim 1, Col. 9, ll. 27-30 ("devices" refers to the devices that make requests and are allowed access to storage devices).  Col. 1, ll. 36-37; Col. 2, ll. 4-5; Col. 4, ll. 55-56; Col. 8, ll. 65-68 (the specification describes the devices that make requests to access the storage devices as "computing devices").  Col. 1, ll. 57-60 ("from the perspective of a	<b>Device:</b> Computer.	See claim 1, <i>supra</i> .	No Construction Necessary.

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		<p>workstation, or other computing device, seeking to access such server data, the access is much slower than access to data on a local storage device ").</p> <p>Claim 3, Col. 9, ll. 37-39 (principles of claim differentiation require "devices," as a group, must necessarily be broader than "workstations").</p> <p>Col. 6, ll. 31-41, 46-56 (the specification describes "servers" as a type of computing device that can make storage access requests).</p> <p>Abstract, Col. 1, ll. 21-24, ll. 36-37, ll. 53-56; Col. 2, ll. 4-6; Col. 3, ll. 3-6, 41-43; Col. 4, ll. 38-42, ll. 55-56 Col. 6, ll. 45-55; Col. 8, ll. 65-68 ("devices" is used broadly to refer to various computing devices such as workstations, input/output devices, "initiator" and "target" devices).</p>			

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		<p>April 6, 2005 Reply to Office Action at 8, 10, 12, 22, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const., Ex. E; July 22, 2005 Reply to Office Action at 7-15, 21-23, 27-29, 32, 33, 35-37, 39, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. F ("Device" is used over ninety times in the reexamination prosecution history to refer to types of devices capable of making requests for storage).</p> <p><b>Extrinsic:</b></p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶ 4 (one of ordinary skill would understand that in the embodiments at Col. 6, ll. 33-41; 46-56, it is the server that sends requests for storage access to the storage router using NLLBP).</p> <p><u>The McGraw-Hill Illustrated Dictionary of Personal Computers</u> 126</p>			



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		<p>(4<sup>th</sup> ed. 1995), Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. W (defining device as "a mechanical, electrical or electromechanical contrivance or appliance. Commonly used in reference to peripherals such as printers, CRTS and disk drives").</p> <p>Hr'g Tr. at 202:24-203:3, 205:4-7, Mar. 8, 2011 (Defendants' counsel agreeing that the defining characteristic of a device is that it is the thing that issues storage requests).</p> <p>May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., ¶3 (a "network server" is a server that can request access to storage).</p> <p>Microsoft Computer Dictionary 430 (3d Ed. 1997), May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., Ex. A (defining "server" as "(1) on a local area</p>		

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		<p>network (LAN), a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network").</p> <p>Special Master's Report at 22, <i>Dot Hill</i> Litigation, Pl.'s Cl. Const. Hr'g Ex. P-15 (Court previously construed "storage router" as "a data transmitting device that allows users to integrate different servers or workstations into a storage network").</p>		
<p>The method of claim 12, wherein the devices connected to the first transport medium comprise <b>workstations</b>.</p>	<p><b>Workstations:</b></p> <p>"A remote computing device that connects to the first (Fibre Channel) transport medium, and may consist of a personal computer."</p>	<p><b>Workstations:</b></p> <p><b>Intrinsic:</b></p> <p>Col. 4, ll. 39-41 (specification defines workstation as a "computing device").</p> <p><b>Extrinsic:</b></p>	<p><b>Workstation:</b></p> <p>A computer including human input/output devices such as a display and keyboard and designed for use by one person at a time.</p>	<p>See claim 3, <i>supra</i>.</p>
				<p>"A computer having input/output devices intended for use by humans."</p>

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		<i>Chaparral</i> Markman Order at 16, Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. L (Crossroads' construction consistent with historic construction); <i>Dot Hill</i> Stipulated Definitions of Claim Terms at 2, Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. M (parties in <i>Dot Hill</i> litigation adopted Crossroads' proposed construction); <u>Microsoft Press Computer Dictionary</u> 368 (1991), Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. Z ("workstation" is understood to be a broad term in the art).			
<b>Claim 14:</b>					
The method of claim 12, wherein the storage devices comprise hard disk drives.	[No claim term at issue]		[No claim term at issue]		

**TABLE OF CITATION ABBREVIATIONS**

Abbreviation	Document(s)	Date	Exhibit No. or Range
<b>Joint Materials</b>			
Hrg. Tr.	Transcript of <i>Markman</i> Hearing before the Honorable Karl Bayer, Jr.	3/08/2011	
Jt. Ex.	Markman Hearing Joint Exhibits		Jt. Ex. 101-114
<b>Plaintiff's Pleadings and Exhibits</b>			
Pl. Br.	Plaintiff Crossroads Systems Inc.'s Markman Brief	2/22/2011	
Pl. Br. Ex.	Exhibits to Declaration of Elizabeth Brown Fore dated 2/22/2011 (in support of Plaintiff's brief)		A-FF
Levy Decl.	Declaration of John Levy, Ph.D.	2/22/2011	
Levy Ex.	Exhibits to Declaration of John Levy, Ph.D.		A-F
Levy Supp.	Supplemental Declaration of John Levy, Ph.D.	3/07/2011	
Levy Supp. Ex.	Exhibits to Supplemental Declaration of John Levy, Ph.D.		A-L
Pl. Hrg. Ex.	Crossroads' Markman Hearing Exhibits		P-1 to P-37
Pl. PHB	Plaintiff Crossroads Systems Inc.'s Post-Hearing Markman Brief	4/29/2011	
Pl. PHB Ex.	Exhibits to Declaration of Elizabeth Brown Fore dated 4/29/2011 (in support of Plaintiff's post-hearing brief)		A-J
Levy 2 <sup>nd</sup> Supp.	Second Supplemental Declaration of John Levy, Ph.D.	4/28/2011	

Abbreviation	Document(s)	Date	Exhibit No. or Range
Levy 2 <sup>nd</sup> Supp. Ex.	Exhibits to Supplemental Declaration of John Levy, Ph.D.		A-D
Pl. RPHB	Plaintiff Crossroads Systems Inc.'s Reply Post-Hearing Brief	5/13/2011	
<b>Defendants' Pleadings and Exhibits</b>			
Def. Br.	Brief in Support of Defendants' Proposed Claim Constructions	2/22/2011	
Def. Ex.	Exhibits to Declaration of George W. Webb III (to accompany Defendants' brief) (also entered as Defendants' hearing exhibits)	2/22/2011	Def. Ex. 1-22
Berg Decl.	Declaration of Brian A. Berg	3/07/2011	
Berg App.	Appendices to Declaration of Brian A. Berg		Berg. App. A-J
Def. PHB	Defendants' Post-Hearing Brief on Issues of Claim Construction	4/29/2011	
Def. PHB Ex.	Exhibits to Declaration of George W. Webb III (to accompany Defendants' brief)	4/29/2011	Def. Ex. 23-24
Def. RPHB	Defendants' Reply Post-Hearing Brief on Issues of Claim Construction	5/13/2011	
<b>Frequently Cited Documents</b>			
'035 patent	U.S. Pat. 6,425,035	7/23/2002	Jt. Ex. 101
'147 patent	U.S. Pat. 7,051,147	5/23/2006	Jt. Ex. 102
First Reexam Reply	'035 file history, Reply to Office Action Under <i>Ex Parte</i> Reexamination Dated 2/07/2005	4/06/2005	Def. Ex. 6



Abbreviation	Document(s)	Date	Exhibit No. or Range
Second Reexam Reply	'035 file history, Reply to Office Action Under <i>Ex Parte</i> Reexamination Dated 5/24/2005	7/22/2005	Def. Ex. 7
'147 Reply	'147 file history, Reply to Office Action Dated 1/27/2005	7/27/2005	Def. Ex. 9
Horst Decl.	Declaration of Robert W. Horst and exhibits in <i>Crossroads v. Postvision</i> (W.D. Tex. case 1:10-cv-00652-SS)	5/20/2010	Def. Ex. 16